المركز الإقليمي للعواصف الغبارية والرملية
Sand and Dust Storm Regional Center

المركز الوطني للأرصاد
National Center for Meteorology

Dust and Sandstorms Events in July 2024

Executive Summary:

This report presents an in-depth analysis of dust and sandstorm (SDS) events across Saudi Arabia during July 2024, benchmarked against the 21-year climatological average (2003–2023). A total of 183 dust hours distributed over 47 days were recorded, reflecting a 49% decrease in dust hours and a 49% decrease in dust days compared to the long-term mean (362 hours; 92 days). Regional variations were pronounced: the Southern and Southwestern Regions were the most active. Jizan emerged as the national hotspot with 14 days and 57 hours (+3 d; +21 h), followed by Sharurah (12 d; 46 h, +2 d; +15 h). Najran (2 d; 6 h) and Taif (1 d; 6 h) recorded moderate events, though still below climatology. In the Eastern Province, Al-Ahsa (3 d; 24 h, –6 d; –35 h) remained the most active station, while Dammam (2 d; 8 h, –3 d; –22 h) and Dhahran (1 d; 2 h, –4 d; –29 h) recorded sharp declines. Hafar Al-Batin had no events (–4 d; –29 h). The Central Region showed weak activity, with Al-Qassim (1 d; 2 h, –1 d; –3 h), Al-Kharj (1 d; 1 h, –3 d; –19 h), and Al-Dawadmi (1 d; 3 h, –2 d; –7 h). Riyadh recorded no dust hours (–4 d; –24 h). In the Northern Region, Arar (1 d; 4 h) matched its climatological days but slightly exceeded in hours (+1 h). Yanbu (2 d; 9 h, –2 d; –1 h) showed limited events. The Western Region saw only minor activity, with Jeddah (1 d; 3 h) near normal, while Al-Madinah was inactive (–1 d; –2 h). On the event scale, blowing dust (BLDU) dominated (173 hours), accompanied by blowing sand (BLSA: 10 h), dust storms (DS: 4 h), sandstorms (SS: 3 h), and one thunderstorm-induced sandstorm (TSSA: 1 h). A notable case study occurred on 8 and 23 July 2024, when strong northerly and northwesterly winds triggered widespread dust activity. On 8 July, METAR reports from Al-Turaif, Al-Baha, and Jizan documented blowing dust with reduced visibility. On 23 July, cumulative dust hours peaked at 13 h nationwide, marking the month's most severe outbreak.These results emphasize that July 2024 remained well below climatology, with national dust activity reduced by nearly half.